Docket No.: HOI-25902/16
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Utility Application of:
Christian Caspersen

Application No.: 09/806,457 | Confirmation No.: 1421

Filed: June 14, 2001 | Art Unit: 2884

For: APPARATUS FOR DETERMINING THE POSITION OF AN OBJECT | Examiner: S. K. Lee

REPLY BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

As required under 37 CFR 41.41, this reply brief is filed within two months of the Examiner's Answer.

Response to Examiner's Arguments

The Examiner's Position

Examiner has based the rejection of:

(1) claims 1, 7, 9, 11, 12, 23-24, 27 and 48 as obvious under 35 U.S.C. §103(a) over Malin et al. (US 5,377,002) in view of Hamashima et al. (US 4,744,663);

(2) claims 15 and 16 as obvious under 35 U.S.C. §103(a) over Malin et al. in view of Hamashima et al. and further in view of Worster et al. (US 5,479,252); and

(3) claims 29, 36, 37, 47 and 49-51 as obvious under 35 U.S.C. §103(a) over Malin et al. in view of Hamashima et al. and further in view of Dixon et al. (US 5,381,224).

In particular, Examiner states that column 12, lines 48-54, column 8, lines 30-33 and column 2, lines 57-62 teach a light spot of > 1 μm (e.g., 50 μm) which is within the range of 20-150 μm required in independent claims 1 and 29 (Examiner's Answer, page 8, lines 1-10 and page 15, lines 5-14).

The Examiner also states that substitution of the dark-field stop 61 of Malin et al. with the dichroic mirror 24 of Hamashima et al. would not destroy the function of the dark-field deflection system 8 of Malin et al. (Examiner's Answer, page 17, lines 3-6) and that proper consideration has been given to the August 11, 2009, 37 CFR 1.132 declaration (Examiner's Answer, page 18, lines 4-5).

Appellant's Position

A. Malin et al. does not provide a *prima facie* case of obviousness for a light spot having a diameter between 20-150 μm on the specimen.

Malin et al. simply fail to teach a light spot having a diameter of greater than 1 μm, much less having a diameter between 20-150 μm.

Column 12, lines 48-54 of Malin et al. state in part that "[t]he unit of measurement used for LPDs is the μmLSE (=micron latex-sphere equivalent), where 1 μmLSE is the diffused-light amplitude produced by a latex sphere of 1 μm diameter." This statement/sentence is simply a definition of the unit of measurement known as LPDs (light point defects). It is void of *any* size or range of size of LPDs.

Column 8, lines 30-33 of Malin et al. state in part that "[b]ecause LPDs are relatively small in relation to the light spot, the width 83 of such pulses depends on the spot width and the speed at which the LPDs move relative to the light spot 12." This statement/sentence simply

explains that LPDs are relatively small in relation to the light spot, but again, is *void* of any size or range of size of LPDs.

Column 2, lines 57-62 of Malin et al. state in part:

> In scanning, the astigmatic light beam produced by the switchable lens system covers a larger area and thus permits a larger feed offset from one revolution to the next. On the other hand, the dot-shaped light beam is used with a small feed offset and makes possible high local resolution.

These statements/sentences simply state that there are two different shaped light beams: one astigmatic (e.g. cigar shaped as taught in Fig. 7a, col. 5, lines 12-23) that covers a larger area and one dot-shaped for high local resolution. Again, there is no teaching or suggestion of *any* light spot size.

And finally, a combination of the three statements/sentences teaches the following: (1) LPDs are relatively small in relation to a light spot; (2) LPDs are measured in units of micron latex-sphere equivalents; and (3) an astigmatic light beam can be used to cover large areas and a dot-shaped light beam can be used for high resolution. As such, how a light spot having a spot size > 1 μm is obtained from Malin et al., and in particular 50 μm -- which conveniently falls within the Appellant's claimed range of 20-150 μm – is quite simply a mystery.

Furthermore, assuming for arguments sake only that a spot size of 1 μm is taught or suggested in Malin et al., which is not the case, then one skilled in the art would need a **200% increase** or expansion of the light spot size in Malin et al. in order to reach the lower limit of the claimed light spot size of between 20-150 μm. That the Examiner has made this assertion is submitted to be improper hindsight. That the Examiner has mad this assertion without any teaching or suggestion in the prior art is completely unfounded.

B. Examiner has failed to give proper consideration to Appellant's declaration proving that Malin et al. and a combination of Malin et al. and Hamashima et al. does not provide an apparatus or method for identifying a position of a fluorescently stained object

On August 11, 2009, Appellant submitted a declaration under 37 CFR 1.132 in which Professor Buchhave, a professor in physics and an expert in the field of optics from the Technical University of Denmark, provided a detailed analysis, with data, that the combination of elements as described by the Examiner would not work. Rather than address the merits of the declaration, the Examiner simply noted that there were differences between Figure 1 in the declaration and Figure 1c (sic) of Malin et al. (Examiner's Answer, page 18, lines 5-15) and dismissed the declaration all together.

The declaration discusses in detail the requirements for measuring fluorescence from stained microscopic biological objects. In addition, sections 8 and 9 explained that the system of Malin et al. is a dark field microscopy system which uses a dark field stop 8 to block light scattered directly back into the receiver optics. Such light scattered directly back into the receiver optics is detrimental to the functioning of the Malin et al. system, whose purpose is detection of light diffracted at large angles from the surface defects. Thereafter, the declaration provides the results of a study to test whether fluorescence can be detected in a dark field microscopy such as taught in Malin et al. and whether inclusion of a dichroic mirror, as proposed by the Examiner, is possible in the system of Malin et al.

The declaration states in section 11 that "Malin et al. system is configured according to the following figure. This set up is a modification of a fluorescence microscope and emulates the principle described in Malin et al. The system combines illumination and light collection on one side of the substrate." The remainder of the declaration provides extensive data as to why a

Malin et al. and a combination of Malin et al. with Hamashima et al. will not work provide detect fluorescence as required in the instant claims. Again, rather than address the merits of the declaration, the Examiner points out differences between Fig. 1 of the declaration and Fig. 1c (sic) of Malin et al., while apparently ignoring the fact that both drawings refer to dark field microscopy systems, and simply dismisses the declaration as a whole. As such, Appellant respectfully submits that the August 11, 20009 declaration has not been given proper consideration and if done so it would be clear that a combination of Malin et al. and Hamashima et al. is improper.

In addition to the above, Appellant has submitted arguments on page 13 of the appeal brief which clearly point out that substitution of the dark field stop 61 with the dichroic mirror 24 would destroy the function of the dark field deflection system 8. These comments were not addressed by the Examiner in the Examiner's Answer.

Conclusion

In summary, Examiner's references and combination of references that make up the outstanding rejections fail to establish a *prima facie* case of obviousness by neither teaching nor suggesting to a person having ordinary skill in the art the subject claimed in independent claims 1 and 29 and all claims depending thereon.

Accordingly, the obviousness rejection under 35 U.S.C. §103(a) with regard to the pending claims should be reversed.

Dated: 8/11/10

Respectfully submitted,

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